

What is claimed is:

- 1 1. A read head for a magnetic recording device, comprising:
2 a substrate made of an electrically insulating material;
3 a conductive film disposed on said substrate;
4 read-head circuitry disposed over said conductive film.
- 1 2. The read head of claim 1, wherein said read-head is part of a slider device, the read head
2 further comprising:
3 an air bearing surface on said slider device, wherein said conductive film is exposed on said air
4 bearing surface.
- 1 3. The read head of claim 2 wherein said conductive film is disposed closer to a leading edge of
2 said slider device than said read-head circuitry.
- 3 4. The read head of claim 3 wherein said read-head circuitry is giant magnetoresistive circuitry.
- 4 5. The read head of claim 4 wherein said substrate is made of alumina.

- 5 6. A read head for a magnetic recording device comprising:
- 6 a substrate made of an electrically insulating material;
- 7 a conductive film disposed on said substrate;
- 8 a first insulating film disposed and planarized over said conductive film;
- 9 an under-shield disposed over said first insulating film and a portion of said conductive film;
- 10 a second insulating film disposed over said under-shield; and
- 11 read-head circuitry disposed on said second insulating film and over said conductive film.
- 12 7. The read head of claim 6 further comprising:
- 13 a grounding pad disposed on said second insulating film and conductively coupled to said
- 14 conductive film.
- 15 8. The read head of claim 7 wherein said read head includes two leads, and said read head further
- 16 comprising two resistive stripes each conductively coupling said under-shield to one of said two
- 17 leads.
- 18 9. The read head of claim 8 wherein a resistance of said resistive stripes is approximately 2 k Ω .
- 19 10. The read head of claim 8 wherein said resistive film is further conductively coupling said under-
- 20 shield to said grounding pad and has a resistance of approximately 200k Ω .

- 21 11. A method of fabricating a read head for a magnetic recording device, comprising:
22 disposing a conductive patch material on a substrate made of an electrically insulating material;
23 and
24 disposing read-head circuitry over a portion of said conductive patch material.
- 25 12. The method of claim 11 wherein said read-head circuitry is giant magnetoresistive circuitry, the
26 method further comprising:
27 disposing an under-shield between said conductive patch material and said read-head circuitry.
- 28 13. The method of claim 12 wherein said substrate is made of alumina.
- 29 14. A method of fabricating a read head for a magnetic recording device, comprising: disposing a
30 conductive patch material on a substrate made of an electrically insulating material;
31 disposing an under-shield over a portion of said conductive patch material; and
32 disposing giant magnetoresistive read-head circuitry over said under-shield.
- 33 15. The method of claim 14, further comprising:
34 disposing a ground pad over a portion of said conductive patch material, said ground pad being
35 conductively coupled to said conductive patch material.

36 16. The method of claim 15, further comprising:
37 disposing an insulating layer over said under-shield;
38 providing at least one via through said insulating film to expose said under-shield;
39 disposing leads for said read-head on said insulating film; and
40 disposing a resistive film on said insulating film so as to conductively couple said under-shield to
41 the leads of said read-head.

42 17. The method of claim 16, wherein said resistive film conductively couples said under-shield to
43 said grounding pad.

44 18. The method of claim 17, wherein said resistive film between the under-shield and the leads of
45 the read-head is approximately $2k\Omega$.

46 19. A method of fabricating read heads for a magnetic recording device, comprising:
47 disposing a conductive patch material on a wafer made of an electrically insulating material for a
48 plurality of read heads, such that said conductive patch material for each of said read heads is
49 conductively coupled together on a top surface of said wafer;
50 disposing an under-shield over a portion of said conductive patch material for each read head;
51 and

52 disposing giant magnetoresistive read-head circuitry over said under-shield for each read head.

53 20. The method of claim 19 wherein in said disposing a conductive patch material operation,
54 conductive material is disposed on a bottom and side surface of said wafer such that conductive
55 material on the bottom side surface of said wafer is conductively coupled to the conductive patch
56 material on the top surface of the wafer.

1 21. The method of claim 20 further comprising:
2 removing said conductive material from the bottom surface of said wafer except for a periphery
3 of said bottom surface of said wafer.

1 22. The method of claim 20 wherein said conductive material is only disposed at a periphery of the
2 bottom surface of said wafer.

1 23. A head suspension assembly comprising:
2 a read head including
3 a substrate made of an electrically insulating material;
4 a conductive film disposed on said substrate;
5 a first insulating film disposed and planarized over said conductive film;
6 an under-shield disposed over said first insulating film and a portion of said conductive

7 film;

8 a second insulating film disposed and planarized over said under-shield; and

9 read-head circuitry disposed on said second insulating film and over said conductive

10 film; and

11 a grounding pad disposed on said second insulating film and conductively coupled to

12 said conductive film; and

13 a suspension including a conductive path coupled to said grounding pad.